
**THE UNITED STATES DISTRICT COURT
DISTRICT OF UTAH**

DEFINITIVE HOLDINGS, LLC, a Utah limited liability company,

Plaintiff,

vs.

POWERTEQ LLC, a Delaware limited liability company,

Defendant.

**MEMORANDUM DECISION
AND ORDER ON [118] PLAINTIFF'S
AND [119] DEFENDANT'S MOTIONS
FOR CLAIM CONSTRUCTION**

Case No.: 2:18-cv-00844-DBB-DBP

District Judge David Barlow

Chief Magistrate Judge Dustin B. Pead

Plaintiff Definitive Holdings, LLC (“Definitive”) accuses Defendant Powerteq LLC (“Powerteq”) of infringing U.S. Patent No. 8,458,689 (“689 Patent”). The parties filed cross motions for claim construction, seeking to construe the meaning of five disputed claim terms.¹ On March 15, 2023, the court held a *Markman* hearing to further develop the record on claim construction. This claim construction memorandum and order construes the disputed terms.

BACKGROUND

“Most internal combustion engines used in modern trucks and automobiles are controlled by a computerized engine controller.”² “The engine controller typically controls a wide range of vehicle operating parameters including spark timing, throttle settings, and so on.”³ These settings are contained on software⁴ which can be modified to “affect the performance of the engine . . .”⁵ Altering that software enables users to, for example, remove a speed limit or alter

¹ ECF Nos. 118–119, filed September 23, 2022.

² U.S. Patent No. 8,458,689 col. 1 ll. 23–25.

³ *Id.* at col. 1 ll. 25–27.

⁴ *Id.* at col. 1 ll. 27–28.

⁵ *Id.* at col. 1 ll. 30–32.

fuel enrichment, cam timing, or ignition toning.⁶ While existing inventions previously allowed users to achieve these alterations, they were “too expensive to be practically purchased or used by an individual car owner.”⁷ The '689 Patent provides a method and apparatus for making these modifications “efficient[ly].”⁸

The United States Patent and Trademark Office (“PTO”) issued the '689 Patent, titled “Method and Apparatus for Reprogramming Engine Controllers,” on June 4, 2013.⁹ Its inventors, Roderick A. Barman and James Edward Conforti, Jr.,¹⁰ had filed for the patent on March 29, 2002.¹¹ Definitive Holdings is the assignee of all rights to the '689 Patent.¹² It initiated this lawsuit against Powerteq in November 2018, alleging direct infringement of the '689 Patent, induced infringement of the '689 Patent, and contributory infringement of the '689 Patent.¹³ It asserts infringement of “at least” claims 1 and 27 of the '689 Patent.¹⁴

Claim 1 of the '689 patent is provided below, with the disputed claim terms indicated in italics:

A method for *upgrading software in an engine controller*, the method comprising:
 placing an engine controller reprogramming apparatus in data communication with the engine controller and, at the engine controller reprogramming apparatus;
 determining a version of current software in the engine controller and requesting from the engine controller and storing in the engine controller reprogramming apparatus a first identification number from the engine controller;
 identifying one or more data blocks of upgraded software associated with the version of current software, the one or more data

⁶ *Id.* at col. 1 ll. 38–45.

⁷ *Id.* at col. 2 ll. 4–5.

⁸ *Id.* at col. 2 ll. 6–7.

⁹ *Id.* at [45], [54].

¹⁰ *Id.* at [76].

¹¹ *Id.* at [22].

¹² First Am. Compl. ¶ 11, ECF No. 8, filed Nov. 16, 2018.

¹³ See *id.* ¶¶ 19–62.

¹⁴ *Id.* at ¶¶ 21, 37, 48, 51, 53, 54, 58.

blocks constituting less than all of the version of current software; and
replacing one or more data blocks of the current software with the one or more data blocks of upgraded software;
wherein replacing the one or more data blocks of current software comprises:
uploading from the engine controller to the engine controller reprogramming apparatus an image of the current software and storing the image of the current software in a memory of the engine controller reprogramming apparatus;
at the engine controller reprogramming apparatus, creating a modified version of the current software at the engine controller reprogramming apparatus by replacing one or more data blocks of the image with the one or more data blocks of upgraded software and retaining at least some data blocks of the image in the modified version of the current software while retaining the uploaded image of the current software in the memory for restoration and downloading a data stream from the engine controller reprogramming apparatus into the engine controller, the data stream comprising the modified version of the current software including the one or more data blocks of upgraded software; and
monitoring *status information* and, if an *interruption* occurs, *using the status information to resume replacing* the one or more data blocks of the current software.¹⁵

Claim 27 of the '689 patent is provided below, with the disputed claim terms indicated in

italics:

An apparatus for *upgrading software in an engine controller*, the apparatus comprising:
an interface configured to communicate data to and from the engine controller;
a memory, which stores information identifying a plurality of software versions and one or more data blocks of upgraded software associated with each of the plurality of software versions; and
a processor in communication with the memory and the interface, the processor configured to:
determine a version of current software in the engine controller and request from the engine controller and store in the memory a first identification number from the engine controller;

¹⁵ '689 Patent col. 12 ll. 23–62.

identify one or more data blocks of upgraded software associated with the version of the current software; and replace one or more data blocks of the current software with the one or more data blocks of upgraded software to create at the apparatus a modified version of the current software, the one or more data blocks constituting less than all of the modified version of current software by:
obtaining an image of the current software from the engine controller and storing that image in the memory;
while retaining the obtained image of the current software in the memory for restoration, forming a data stream and downloading the data stream into the engine controller in order to replace the current software with the modified version of the current software, the data stream comprising the modified version of the current software, the data stream obtained by modifying the image of the current software at the apparatus by replacing one or more data blocks of the image with the one or more data blocks of upgraded software the data stream including at least some unmodified data blocks of the image; and
monitor *status information* while replacing the one or more data blocks of the current software and, if an *interruption* occurs, *use the status information to resume replacing* the one or more data blocks of the current software.¹⁶

On September 23, 2022, both parties filed motions for claim construction.¹⁷

DISCUSSION

“In construing claims, district courts give claims their ordinary and customary meaning, which is ‘the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.’”¹⁸ “[B]ecause patentees frequently use terms idiosyncratically, the court looks to’ sources including ‘the words of the claims themselves, the remainder of the

¹⁶ *Id.* at col. 15 l. 24–col. 16 l. 17.

¹⁷ ECF Nos. 118, 119.

¹⁸ *Cont'l Cirs. LLC v. Intel Corp.*, 915 F.3d 788, 796 (Fed. Cir. 2019) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc)). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Neither side argues these exceptions are applicable.

specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.”¹⁹

“From this list of sources, ‘the claims themselves provide substantial guidance as to the meaning of particular claim terms.’”²⁰ “However, the claims ‘do not stand alone.’”²¹ “They are part of ‘a fully integrated written instrument, consisting principally of a specification that concludes with the claims,’ and must therefore ‘be read in view of the specification.’”²² “Accordingly, the specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’”²³

“In addition to consulting the specification, . . . a court ‘should also consider the patent’s prosecution history, if it is in evidence.’”²⁴ “Like the specification, the prosecution history provides evidence of how the [PTO] and the inventor understood the patent.”²⁵ “We have cautioned, however, that ‘because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.’”²⁶

Finally, if a district court disagrees with the parties’ proposed constructions, the court may construe the claims in a way that neither party advocates because it has an independent obligation to determine the meaning of the claims.²⁷

¹⁹ *Cont'l Cirs. LLC*, 915 F.3d at 796 (quoting *Phillips*, 415 F.3d at 1314).

²⁰ *Id.* (quoting *Phillips*, 415 F.3d at 1314).

²¹ *Id.* (quoting *Phillips*, 415 F.3d at 1315).

²² *Id.* (quoting *Phillips*, 415 F.3d at 1315).

²³ *Id.* (quoting *Phillips*, 415 F.3d at 1315); see *Braintree Lab'ys, Inc. v. Novel Lab'ys, Inc.*, 749 F.3d 1349, 1354–55 (Fed. Cir. 2014) (“In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to ‘particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.’” (quoting *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001))).

²⁴ *Cont'l Cirs. LLC*, 915 F.3d at 796 (quoting *Phillips*, 415 F.3d at 1317).

²⁵ *Id.* (quoting *Phillips*, 415 F.3d at 1317).

²⁶ *Id.* (quoting *Phillips*, 415 F.3d at 1317).

²⁷ *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1274 (Fed. Cir. 2012) (citing *Exxon Chemical Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555 (Fed. Cir. 1995)).

A. Person of Ordinary Skill in the Art

The first step in the claim construction process is to define a “person of ordinary skill in the art.” “The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation.”²⁸

Definitive proposes that “a person having ordinary skill in the art is one having familiarity with how to program computers as well as two to three years of practical experience working with automotive electronic control units.”²⁹

While “Powerteq does not substantively disagree with Definitive’s position,”³⁰ Powerteq offers its own standard: “the level of ordinary skill encompassed [by] a person with (a) a Bachelor’s degree in engineering, electrical engineering or a comparable field of study, such as electrical or computer engineering or similar; and (b) at least three years of relevant experience, such as in electronic control systems.”³¹ Definitive responds that it would edit this “proposed level of ordinary skill in the art to be (a) a degree in computer science, computer engineering or a related field, and (b) two or more years of experience with embedded systems such as automotive control units, with the caveat that relevant industry experience may compensate for lack of formal education or vice versa.”³² This is because a degree in “engineering” is too broad and could encompass a field of study such as chemical engineering, which would not necessarily entail an understanding of computer programming.³³

Because this invention concerns computer software with an automotive application, the court adopts Definitive’s proposed alteration of Powerteq’s standard: a “person of ordinary skill

²⁸ *Phillips*, 415 F.3d at 1313.

²⁹ Pl.’s Mot. for Claim Construction 8, ECF No. 118 at 8–9 (citing Conforti Decl.).

³⁰ Def.’s Opp’n 8, ECF No. 144 at 12.

³¹ *Id.* at 9 (citing Brogioli Decl.).

³² Pl.’s Opp’n 2, ECF No. 142 at 5.

³³ *Id.* at 1.

in the art” is one who has (a) a degree in computer science, computer engineering, or a related field, and (b) two or more years of experience with embedded systems such as automotive control units, with the caveat that relevant industry experience may compensate for a lack of formal education or vice versa. Therefore, the court is tasked with determining how a person with this level of skill would define the below terms.

B. Disputed Terms

1. “upgrading software in an engine controller”

Term	Definitive’s Construction	Powerteq’s Construction	Patent Reference (col: lines)
upgrading software in an engine controller (Claims 1, 21, 27)	The preamble is not limiting The process of modifying engine control software	The preamble is limiting the process of improving engine control software for the purpose of changing one or more functionalities implemented by the engine control software from an original state. Upgrading is distinct from restoring, which is reverting engine control software to its original pre-upgrade state.	Abstract; Fig. 4; 1:16-19; 2:11-19; 3:26-51; 6:14-18.

Definitive’s proposed construction of “upgrading software in an engine controller” is “the process of modifying engine control software.” In support, it points to the Abstract of the patent, which defines the invention as “methods and apparatus for altering the software of engine controllers.”³⁴ Altering, it contends, is a synonym for “modifying.”³⁵ According to Definitive, this means that “upgrade” would encompass both upgrade *and* restore operations.³⁶ Finally, it contends that Powerteq’s construction’s incorporation of the word “improving” makes the

³⁴ Pl.’s Mot. for Claim Construction 10, ECF No. 118 at 10.

³⁵ *Id.*

³⁶ *Id.*

definition impermissibly subjective: a process is only an upgrade if a user has the requisite state of mind.³⁷

Powerteq's proposed construction is "the process of improving engine control software for the purpose of changing one or more functionalities implemented by the engine control software from an original state. Upgrading is distinct from restoring, which is reverting engine control software to its original pre-upgrade state." Powerteq argues that the "preamble's stated objective—to upgrade the software in the engine controller" is limiting, meaning that the invention's operation is to achieve an improvement rather than a restoration.³⁸ And because a "'modification' could include an upgrade or a restoration," "modifying" is too broad according to Powerteq.³⁹

As *Phillips* instructs, the court turns first to the words of the patent, beginning with the claims. In claims 1 and 21, the preamble describes a method for "upgrading software in an engine controller."⁴⁰ The method comprises "determining a version of current software in the engine controller"⁴¹ and then "identifying one or more data blocks of upgraded software associated with the version of current software."⁴² Thus, at the time an upgrade operation is commenced, the engine controller's existing software is its "current software."⁴³ A software "version" consists of multiple, interchangeable "data blocks." Claim 27, the independent claim covering the apparatus, instructs that the apparatus "stores information identifying a plurality of software versions and one or more data blocks of upgraded software associated with each of the

³⁷ *Id.* at 9.

³⁸ Def.'s Mot. for Claim Construction 13, ECF No. 119 at 17.

³⁹ *Id.* at 14.

⁴⁰ '689 Patent col. 12 l. 23, col. 14 ll. 28–29.

⁴¹ *Id.* at col. 12 ll. 28–29.

⁴² *Id.* at col. 12 ll. 33–34.

⁴³ This may be, but need not be, stock software, "any version of software stored in an engine controller which has not been upgraded according to this invention or which has been upgraded and subsequently restored according to this invention." *Id.* at col. 5 ll. 33–36.

plurality of software versions.”⁴⁴ When the invention is applied, the apparatus checks the engine controller’s current software version and then identifies associated data blocks of upgraded software from within its memory.⁴⁵

Next, the method involves “replacing one or more data blocks of the current software with the one or more data blocks of upgraded software.”⁴⁶ In order to do so, claim 1’s method comprises “creating a modified version of the current software at the . . . apparatus by replacing one or more data blocks of the image with the one or more data blocks of upgraded software and retaining at least some data blocks of the image in the modified version of the current software.”⁴⁷ Therefore, once the current software version is edited by replacing one or more of its data blocks with data blocks of upgraded software, it is a “modified version of the current software.”

In context then, it is clear that “upgrading software in an engine controller” refers to modifying the engine controller’s version of current software by replacing one or more, but not all, data blocks of the current software to create a modified version of the current software. Current software is the software existing on the engine controller at the time an upgrade operation is initiated.

This definition aligns with the other intrinsic evidence in the specification. In the abstract, the patent describes the invention as “relat[ing] to methods and apparatus for altering the software of engine controllers.”⁴⁸ In the background section, it describes how “the performance of late model BMW cars can be improved by replacing the stock software of the engine

⁴⁴ *Id.* at col. 15 ll. 38–41.

⁴⁵ *Id.* at col. 12 ll. 28–36.

⁴⁶ *Id.* at col. 12 ll. 37–38.

⁴⁷ *Id.* at col. 12 ll. 46–52.

⁴⁸ *Id.* at [57].

controller”⁴⁹ The section provides that “data blocks of upgraded software” are “software which provides higher performance,” such as “alter[ing] fuel enrichment, cam timing, ignition toning and other engine operating parameters.”⁵⁰ The section concludes by stating that “[t]here is a need for an efficient way to alter the software of a computerized engine controller.”⁵¹ This evidence shows that the apparatus can alter the engine’s operating parameters by replacing select data blocks of the engine controller’s existing software with data blocks of upgraded software.

As Powerteq correctly observes, this means that “upgrading” software in an engine controller is different than “restoring.” Claim 1 involves “uploading from the engine controller to the . . . apparatus an image of the current software and storing the image of the current software in [the apparatus’s] memory.”⁵² It “retain[s] the uploaded image of the current software in the memory for restoration.”⁵³ Dependent claim 12 describes a method of “restoring the current software by downloading the unaltered image of the current software from the memory of the . . . apparatus back into the engine controller.”⁵⁴ From this, it is evident that a “restore” operation involves the apparatus consulting its memory to locate the current software and then downloading the entire unaltered image to the engine controller. This process does not involve modifying the current software saved on the apparatus’s memory; no data blocks are replaced. The image of the current software is simply uploaded and then downloaded. Therefore, “upgrading software in an engine controller” is different than “restoring” the software in the

⁴⁹ *Id.* at col. 1 ll. 46–49.

⁵⁰ *Id.* at col. 1 ll. 48–49.

⁵¹ *Id.* at col. 2 ll. 6–7.

⁵² *Id.* at col. 12 ll. 41–45.

⁵³ *Id.* at col. 12 ll. 52–53.

⁵⁴ *Id.* at col. 13 ll. 54–57.

engine controller because “upgrading” involves replacing data blocks of current software with associated, different software blocks and “restoring” does not.⁵⁵

Definitive’s proposed construction—that “upgrading software in an engine controller” means “the process of modifying engine control software”—is too broad because it could include the restore operation. The two operations—upgrade and restore—are different *subsets* of modifying (or “altering”) the engine control software.⁵⁶ Definitive’s definition would encompass restoring an engine controller’s software by downloading the stored image of the current software from the apparatus, because this too would “modify” the engine control software by replacing the upgraded version with the pre-upgrade version. But this would not be an “upgrade” as implicitly defined by the patent, because it would not involve the replacement of data blocks. Therefore, Definitive’s definition is overly inclusive.

Powerteq’s proposed construction—“The process of improving engine control software for the purpose of changing one or more functionalities implemented by the engine control software from an original state. Upgrading is distinct from restoring, which is reverting engine control software to its original pre-upgrade state”—suffers from its own deficiencies. First, it defines restoring, which is not a claim for which the parties sought construction. Second, it describes the “purpose” of the process (“improving”), which is subjective and unhelpful. Third, it

⁵⁵ The court need not resolve Powerteq’s argument regarding whether the preamble is limiting in this case, for the body of the independent claims clearly define “upgrading software in an engine controller.” *See Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (“In general, a preamble limits the [claimed] invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” (quoting *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)).

⁵⁶ See, e.g., '689 Patent col. 2 ll. 11–14, 47–48 (“The invention relates to methods and apparatus for altering the software of engine controllers. One aspect of the invention provides methods for upgrading software in an engine controller The method may also comprise subsequently restoring the current software”); *id.* at col. 5 ll. 1–5 (“Processor 12 has a user interface 17, which permits users to instruct processor 12 to either upgrade . . . or to restore the software”); *id.* at col. 7 ll. 38–40 (“The marker may be set when an operation commences and identifies the operation (e.g. upgrade or restore.”); *id.* at col. 7 ll. 47–50 (“For example, the marker may point to the location at which an upgrade or restore operation was interrupted”); *see id.* at fig. 3.

describes the current software as “an original state,” mischaracterizing the current software as synonymous with stock software, when the invention covers previously upgraded software as well. Therefore, the court will not adopt this claim construction either.

Instead, the court construes the phrase “upgrading software in an engine controller” to mean modifying the engine controller’s version of current software by replacing one or more, but not all, data blocks of the current software to create a modified version of the current software. Current software is the software existing on the engine controller at the time an upgrade operation is initiated.

2. “status information” / “the status information”

Term	Definitive’s Construction	Powerteq’s Construction	Patent Reference (col: lines)
status information / the status information (Claims 1, 21, 27)	Information relating to a state or condition with respect to circumstances, such as a marker	<p>information about (1) whether the current operation is an “upgrade” or “restore” operation or (2) the location at which an “upgrade” or “restore” operation was interrupted, as distinct from “status codes,” which represent events, faults or errors during or prior to an upgrade or restore operation.</p> <p>“The status information” means that the same “status information” that is “monitored” is also “used.”</p>	2:59-3:2

Definitive’s proposed construction of “status information” is “[i]nformation relating to a state or condition with respect to circumstances, such as a marker.” Definitive contends that “[i]n view of the absence of a definition provided by the inventors, ‘status information’ should be

given its ordinary and customary meaning.”⁵⁷ In order to figure out what this is, Definitive turns to a Merriam-Webster dictionary and a Cambridge dictionary.⁵⁸

Powerteq’s proposed construction is

information about (1) whether the current operation is an “upgrade” or “restore” operation or (2) the location at which an “upgrade” or “restore” operation was interrupted, as distinct from “status codes,” which represent events, faults or errors during or prior to an upgrade or restore operation.

“The status information” means that the same “status information” that is “monitored” is also “used.”

It contends that status information “is solely disclosed in the '689 Patent as a marker or other data structure that tells you where an operation was at the time of the interruption (including what that operation was), so that the device can eventually use this information to continue from where it left off.”⁵⁹ Most of its definition is derived from the specific embodiments.

Turning to the intrinsic evidence of the patent, the body of claim 1 provides, “wherein replacing the one or more data blocks of current software comprises: . . . monitoring status information and, if an interruption occurs, using the status information to resume replacing the one or more data blocks of the current software.”⁶⁰ The two other independent claims provide similarly.⁶¹ From these claims, it can be understood that the apparatus monitors “status information” during operations and consults “status information” in the event of an interruption. Dependent claims 16–19 add more context. Claim 16 states, “[a] method according to claim 12

⁵⁷ Pl.’s Mot. for Claim Construction 13–14, ECF No. 118 at 13–14.

⁵⁸ *Id.* at 14.

⁵⁹ Def.’s Opp’n 14, ECF No. 144 at 18.

⁶⁰ '689 Patent col. 12 ll. 39–40, 58–62.

⁶¹ *Id.* at col. 15 ll. 1–5 (“at the engine controller reprogramming apparatus monitoring status information while replacing the one or more blocks of the current software and, if an interruption occurs, using the status information to resume replacing the one or more blocks of the current software”); *id.* at col. 16 ll. 13–17 (“monitor status information while replacing the one or more data blocks of the current software and, if an interruption occurs, use the status information to resume replacing the one or more data blocks of the current software”).

[(a restore operation)] comprising maintaining at the . . . apparatus status information during restoring the current software.”⁶² Claim 17 adds, “[a] method according to claim 16, wherein the status information comprises a marker.”⁶³ Claim 18 covers the upgrade operation: “[a] method according to claim 1 [(an upgrade operation)], comprising maintaining at the . . . apparatus status information during replacing the one or more data blocks of the current software.”⁶⁴ And claim 19 adds, “[a] method according to claim 18, wherein the status information comprises a marker.”⁶⁵ From this, it appears that status information is involved in both upgrade and restore operations, it is stored on the apparatus, and it “comprises” a “marker.”

In its discussion of a preferred embodiment, the patent also discusses “state information” maintained by the apparatus during an operation.⁶⁶ This is the only location the term “state information” appears in the patent. Definitive argues that “state information” is a “more technical term” than the “general term ‘status information’” and therefore is a “subset” of status information, but it cites to no evidence to support this position.⁶⁷

Turning to the text of the specification, it provides,

Preferably, apparatus 10 maintains *state information* about its current operation. If communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the *state information* to cause the disrupted operation to be automatically resumed the next time apparatus 10 is used. The *state information* may comprise, for example, a marker recorded by processor 12. The marker may be set when an operation commences and identifies the operation (e.g. upgrade or restore). The marker may be cleared after the operation completes successfully. If an upgrade or a restore is interrupted, then processor 12 would set the appropriate marker is set and repeats the marked operation if engine controller 42 does not contain a valid version

⁶² *Id.* at col. 14 ll. 7–9.

⁶³ *Id.* at col. 14 ll. 10–11.

⁶⁴ *Id.* at col. 14 ll. 12–15.

⁶⁵ *Id.* at col. 14 ll. 16–17.

⁶⁶ *Id.* at col. 7 ll. 32–51.

⁶⁷ Pl.’s Mot. for Claim Construction 12–13, ECF No. 118 at 12–13.

(either upgraded or stock) of the engine control software. Other schemes which maintain records of intermediate steps in an operation could also be used. For example, the marker may point to the location at which an upgrade or restore operation was interrupted, such that the operation can continue from the point where it was immediately prior to the interruption.⁶⁸

From the description of this embodiment, “state information” appears to be synonymous with “status information.” Both are “maintained” and “monitored” during upgrade and restore operations, and both are “used” when there is an interruption. Further, both may comprise a marker. There is no indication that “state information” is a subset of “status information.”

The claims do not provide clarity as to whether “comprise” means “to constitute in its entirety” or “contains, among others.” For example, claim 19 states “[a] method according to claim 18, wherein the status information comprises a marker.”⁶⁹ The preferred embodiment adds insight into a “marker”: it may be set when the operation is commenced to identify the type of operation (e.g., an upgrade or a restore) and/or when the operation is interrupted to identify the location of the disruption.⁷⁰

Powerteq argues that “status information” “must be a marker” and not simply “any marker,” but a marker that “is used to ‘resume’ and not simply a generic marker that can perform any function.”⁷¹ To support its position, it points to a preferred embodiment that states, “[i]f an interruption occurs, the status information may be used to resume replacing the one or more data blocks of the current software from a state immediately prior to the interruption.”⁷² “Therefore,” Powerteq contends, “the status/state information marker must provide the specific status or state

⁶⁸ '689 Patent col. 7 ll. 32–51.

⁶⁹ *Id.* at col. 14 ll. 16–17.

⁷⁰ *Id.* at col. 7 ll. 37–51.

⁷¹ Def.’s Opp’n 14, ECF No. 144 at 18.

⁷² *Id.* Notably, claims 1, 21, and 27 do not include the “immediately prior to the interruption” language.

of the operation in order to resume the operation where the device left off when interrupted.”⁷³

But this argument conflates the permissive “may” with the imperative “must.” On the other side, Definitive argues that if a marker were the only data that status information contained, the two terms would be synonymous and would violate the doctrine of claim differentiation.⁷⁴ That doctrine creates a presumption that “different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.”⁷⁵ “To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.”⁷⁶ “The doctrine of claim differentiation is at its strongest . . . ‘where the limitation that is sought to be ‘read into’ an independent claim already appears in a dependent claim.’”⁷⁷

The limitation that status information “comprises a marker” appears in two dependent claims, but not in the independent claims. Reading the limitation back into the independent claims would render the dependent claims superfluous: if “status information” categorically means only “a marker,” then claim 1 recites a method for “monitoring [a marker] and, if an interruption occurs, using the [marker] to resume replacing . . . ,”⁷⁸ meaning that claims 17 and 19 would not offer any additional limitations. And, while the dependent claims do not suggest any non-enumerated items also “comprise” status information,⁷⁹ the wording of the specification and summary do: “The state information *may* comprise, *for example*, a marker.”⁸⁰ Because the

⁷³ *Id.*

⁷⁴ Pl.’s Opp’n 10, ECF No. 142 at 13.

⁷⁵ *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1369 (Fed. Cir. 2007) (quoting *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999)).

⁷⁶ *Id.* at 1369–70 (quoting *Tandon Corp. v. U.S. Int’l Trade Comm’n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987)).

⁷⁷ *InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012) (quoting *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004))).

⁷⁸ ‘689 Patent col. 12 ll. 59–61.

⁷⁹ *Id.* at col. 14 ll. 10–11; *id.* at col. 14 ll. 16–17.

⁸⁰ *Id.* at col. 7 ll. 37–38 (emphasis added). The summary contains similar language: “The status information may comprise a marker.” *Id.* at col. 3 ll. 1–2.

court should not construe a term to exclude a preferred embodiment and should ensure there is claim differentiation, the definition will allow for “status information” to contain *more* than a marker.

Considering all the intrinsic evidence, the context provides a definition for “status information:” data, which may comprise a marker, stored on the apparatus during an upgrade or a restore operation, that are consulted by the apparatus in the event of an interruption.

Definitive’s argument that the patent does not define “status information” and that therefore the court should adopt the “ordinary and customary meaning”—which Definitive contends is the dictionary definition—is incorrect for two reasons. First, as detailed in the above analysis, the patent does implicitly define status information. Second, the ordinary and customary meaning does not mean the dictionary definition in most circumstances. As the Federal Circuit instructed in *Phillips*, to determine the ordinary and customary meaning to a person of ordinary skill in the art in question at the time of the invention “‘the court looks to’ sources including ‘the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.’”⁸¹ And since neither party pointed to any prosecution history or to applicable extrinsic evidence to illustrate how a “person of ordinary skill in the art” would define “status information,” the court has before it solely the claims and the remainder of the specification. The court construed the term in alignment with the context provided by the intrinsic evidence.

There also is no intrinsic support for Definitive’s argument that “status information is broad enough to encompass status codes.”⁸² The term “status codes” appears twice in a preferred

⁸¹ *Cont'l Cirs. LLC*, 915 F.3d at 796 (quoting *Phillips*, 415 F.3d at 1314).

⁸² Pl.’s Mot. for Claim Construction 16, ECF No. 118 at 16.

embodiment,⁸³ but the codes also appear as “outputs,”⁸⁴ “an indication to users of an occurrence,”⁸⁵ and “codes”⁸⁶ in claims 20, 32, and 33. “Status information” is never used in conjunction with “status codes.” Within the claims, the word “status” only appears in connection with the codes in claim 33, which reads, in relevant part, “the user interface comprises a light configured to flash in a manner representing a code of a codification scheme, the code indicating a *status* of the apparatus.”⁸⁷ The claims detail that these codes may indicate “whether the version of the current software in the engine controller corresponds with one of the plurality of software versions,” “a low operating voltage,” and “a failure to recognize hardware associated with the engine controller.”⁸⁸ From claim 1 and the preferred embodiments, it is apparent that these output codes may be generated *before* an upgrade or restore operation is selected or started.⁸⁹ Because the claims only indicate that “status information” is maintained “*during*” an upgrade or restore operation,⁹⁰ construing “status information” to include “status codes” as Definitive proposes would expand what is claimed under the patent. Finally, the claims provide that “status information” is “monitored” and “used” by the apparatus itself: “*monitoring* status information and, if an interruption occurs, *using* the status information to resume replacing the one or more data blocks of the current software.”⁹¹ A code, as defined by the patent, informs the *user*: “at the .

⁸³ '689 Patent col. 8 ll. 43–46.

⁸⁴ *Id.* at col. 16 ll. 37–51.

⁸⁵ *Id.* at col. 14 ll. 20–21.

⁸⁶ *Id.* at col. 8 l. 48; *id.* at col. 9 l. 1.

⁸⁷ *Id.* at col. 16 ll. 53–56 (emphasis added).

⁸⁸ *Id.* at col. 16 ll. 52–56.

⁸⁹ *Id.* at col. 12 ll. 23–32 (“A method for upgrading software in an engine controller, the method comprising: placing an engine controller reprogramming apparatus in data communication with the engine controller and, at the engine controller reprogramming apparatus; determining a version of current software in the engine controller and requesting from the engine controller and storing in the engine controller reprogramming apparatus a first identification number from the engine controller;”); *see, e.g.*, col. 8 l. 63–64 (“Typically, the foregoing codes are generated as a result of events which occur *prior to an upgrade being attempted.*”) (emphasis added).

⁹⁰ *Id.* at col. 14 ll. 7–9, 12–16. The upgrade and restore operations are a part of the method; they do not constitute the entirety of the method. *See id.* at fig. 3.

⁹¹ *Id.* at col. 12 ll. 23–61.

. . . apparatus, outputting an indication *to users* of an occurrence of one or more of: an error . . .

.”⁹² So, while it is possible that “status information” may be used by the apparatus to trigger it to display codes to the user, the intrinsic evidence of the patent shows that “status information” does not include status codes. It is only under Definitive’s dictionary definition for “status information” that the term becomes broad enough to potentially include status codes. The text of the patent itself does not provide support for this construction.

3. “interruption”

Term	Definitive’s Construction	Powerteq’s Construction	Patent Reference (col: lines)
interruption (Claims 1, 21, 27)	A stoppage or break in continuity	A stoppage of communications with the engine controller during the upgrade process	2:59-3:2; 7:32-51

Definitive argues that no construction is necessary for “interruption,” but that if the court deems it to be, then it proposes another Merriam-Webster dictionary definition: “[a] stoppage or break in the continuity of something.”⁹³

Powerteq contends that an interruption is “[a] stoppage of communications with the engine controller during the upgrade process.” In support of its position, it points to a phrase in claim 1, which states that, “if an interruption occurs, using the status information to resume replacing the one or more data blocks of the current software.”⁹⁴ It then points to a sentence in a preferred embodiment: “If communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the state information to cause the disrupted operation to be automatically resumed the next time apparatus 10 is used.”⁹⁵ Distilling

⁹² *Id.* at col. 14 ll. 19–27 (emphasis added).

⁹³ Pl.’s Mot. for Claim Construction 17, ECF No. 118 at 17.

⁹⁴ Def.’s Mot. for Claim Construction 20, ECF No. 119 at 24 (quoting '689 Patent col. 12 ll. 58–62).

⁹⁵ *Id.* at 20–21 (quoting '689 Patent col. 7 ll. 33–37).

meaning from these two phrases, Powerteq argues that the interruption must be in communications with the engine controller and that the communications must be ended, meaning unable to be finished in that session.⁹⁶

Again, the court begins its analysis by examining the intrinsic evidence. “Interruption” appears eight times in the patent, and “interrupted” three times. In claim 1, the patent states, “monitoring status information and, if an interruption occurs, using the status information to resume replacing the one or more data blocks of the current software.”⁹⁷ Claims 21 and 27 provide similarly.⁹⁸

“Interruption” first appears in the Summary of the Invention. It states twice, “If an interruption occurs, the status information may be used to resume . . . from a state immediately prior to the interruption.”⁹⁹ The first of these sentences addresses the upgrade operation,¹⁰⁰ while the second addresses the restore operation.¹⁰¹ This means that the last fragment of Powerteq’s proposed construction—“during the *upgrade* process”—is untenable.

In the preferred embodiment, the patent recites:

Preferably, apparatus 10 maintains state information about its current operation. If communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the state information to cause the disrupted operation to be automatically resumed the next time apparatus 10 is used. . . . If an upgrade or a restore is interrupted, then processor 12 would set the appropriate marker is set and repeats the marked operation if engine controller 42 does not contain a valid version

⁹⁶ *Id.* at 21.

⁹⁷ '689 Patent col. 12 ll. 58–62.

⁹⁸ *Id.* at col. 15 ll. 3–5; col. 16 ll. 14–17.

⁹⁹ *Id.* at col. 2 l. 61–col. 3 l. 1.

¹⁰⁰ *Id.* at col. 2 ll. 59–64 (“The method may also comprise monitoring status information during the replacement the one or more data blocks of the current software. If an interruption occurs, the status information may be used to resume replacing the one or more data blocks of the current software from a state immediately prior to the interruption.”).

¹⁰¹ *Id.* at col. 2 l. 64–col. 3 l. 1 (“Similarly, the invention may comprise monitoring status information during the restoration of the current software. If an interruption occurs, the status information may be used to resume restoring the current software from a state immediately prior to the interruption.”).

(either upgraded or stock) of the engine control software. . . . For example, the marker may point to the location at which an upgrade or restore operation was interrupted, such that the operation can continue from the point where it was immediately prior to the interruption.¹⁰²

From this, it appears that “interrupted” is likely synonymous with “disrupted”: the operation is stopped before it is complete, but it is capable of being resumed. It is not a meaning that is idiosyncratic. This appears to be one of those cases where “the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.”¹⁰³ And, while they both propose additional language, the parties agree on a definition that is consistent with the intrinsic evidence in the patent and the common understanding of “interruption”¹⁰⁴: a stoppage.

The additional language in Powerteq’s proposed construction is inconsistent with the intrinsic evidence for a number of reasons. First, in order to derive its proposed construction, Powerteq claims there is a limitation in a preferred embodiment and then reads it back into the claim. It points to this language in a preferred embodiment— “[i]f communication with the engine controller is interrupted” and “the next time the apparatus 10 is used”—to argue that the patent limits “interruption” to a “complete stoppage” in “communications with the engine” that prohibits the operation from being finished in the same session as the interruption.¹⁰⁵ But “it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that

¹⁰² *Id.* at col. 7 ll. 32–51.

¹⁰³ *Phillips*, 415 F.3d at 1314 (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)).

¹⁰⁴ See *Webster’s Third New Int’l Dictionary of the English Language* 1182 (2002) (“to break or stop the uniformity, continuity, sequence, or course of” (defining “interrupt”)); *The New Oxford American Dictionary* 888 (2001) (“stop the continuous progress of (an activity or process); stop; obstruct” (defining “interrupt”)).

¹⁰⁵ Def.’s Mot. for Claim Construction 21, ECF No. 119 at 25.

the patentee intended the claims to be so limited.”¹⁰⁶ The definition that Powerteq proposes reads back purported limitations from a preferred embodiment—that the interruption be in the communication with the engine controller and that the interruption is a “complete” stoppage—into claims that do not contain those alleged limitations, without any indication from the record that the patentee intended the claims to be so limited.

Second, it is “ideal” that “claim constructions give meaning to all of a claim’s terms. Construing a claim term to include features of that term already recited in the claims would make those expressly recited features redundant.”¹⁰⁷ Powerteq’s definition of interruption as a “stoppage of *communications with the engine controller*” makes the language of the preferred embodiment “[i]f *communication with the engine controller* is interrupted”—superfluous. Therefore, that phrase will not be injected into the definition of “interruption.”

The additional language proposed by Definitive—“break in continuity”—is consistent with the intrinsic evidence but unnecessary. It is pulled from a non-technical dictionary, and Definitive does not explain what the extra phrase adds to the definition that “a stoppage” does not already cover. Therefore, it will not be included in the construction.

The court will construe interruption consistently with the intrinsic evidence and the parties’ proposed constructions as a stoppage.

¹⁰⁶ *Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1341 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim*, 358 F.3d at 913); *Phillips*, 415 F.3d at 1323 (“It is an established tenet of patent law that claims define the invention and limitations from the specification should not be imported into the claims.”).

¹⁰⁷ *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016) (citing *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005)).

4. “resume replacing”

Term	Definitive’s Construction	Powerteq’s Construction	Patent Reference (col: lines)
resume replacing (Claims 1, 21, 27)	To take up again	continuing the interrupted upgrade operation from the point of the interruption the next time the device is used. An interrupted upgrade operation is not resumed with a restoration operation.	2:59-3:2; 7:32-51

Definitive contends that “the term ‘resume replacing’ is yet another example of a term that likely needs no construction.”¹⁰⁸ However, “if the Court is inclined to construe this term, Definitive requests that it be construed as ‘to take up again,’” a definition from a Merriam-Webster dictionary.¹⁰⁹ Powerteq’s proposed construction for the phrase is “[c]ontinuing the interrupted upgrade operation from the point of the interruption the next time the device is used. An interrupted upgrade operation is not resumed with a restoration operation.” It argues that this construction is “completely consistent with the intrinsic evidence.”¹¹⁰ In support, it points to the two occurrences of the phrase in the patent and contends that “‘resume’ is always used in reference to resuming the interrupted operation” and that “‘resume *replacing*’ is only used in reference to the upgrade operation.”¹¹¹

As Definitive accurately describes it, “[t]he dispute with this term appears to be centered on what is resumed and when it is resumed. These questions are not answered by construing ‘resume,’ but by noting the other language in the claims.”¹¹² The court agrees. Because the phrase “resume replacing” cannot be construed separate from the clause within which it lives, the

¹⁰⁸ Pl.’s Mot. for Claim Construction 19, ECF No. 118 at 19.

¹⁰⁹ *Id.*

¹¹⁰ Def.’s Mot. for Claim Construction 22, ECF No. 119 at 26.

¹¹¹ Def.’s Opp’n 22, ECF No. 144 at 26.

¹¹² Pl.’s Mot. for Claim Construction 19, ECF No. 118 at 19.

court will consider the entire clause: “resume replacing the one or more data blocks of the current software.”

Turning to the words of the patent, the phrase “resume replacing” occurs in independent claims 1, 21, and 27. Claim 1 provides, “wherein replacing the one or more data blocks of current software comprises: . . . monitoring status information and, if an interruption occurs, using the status information to resume replacing the one or more data blocks of the current software.”¹¹³ Claims 21 and 27 provide similarly.¹¹⁴ The phrase also appears in the “Summary of the Invention”: “If an interruption occurs, the status information may be used to resume replacing the one or more data blocks of the current software from a state immediately prior to the interruption.”¹¹⁵ Every time the patent uses the language “replacing the one or more data blocks” or “replacing,” it is in reference to the upgrade operation.¹¹⁶

When describing the restore operation, the patent *never* employs the words “replacing” or “data blocks.” For example, in dependent claim 12, the patent provides, “[a] method according to claim 1, comprising . . . restoring the current software by downloading the unaltered image of the current software from the memory of the . . . apparatus back into the engine controller.”¹¹⁷ In the summary, the patent states “[t]he method may . . . comprise subsequently restoring the current software by downloading the image of the current software back into the engine

¹¹³ '689 Patent col. 12 ll. 39–40, 58–62.

¹¹⁴ See *id.* at col. 15 ll. 3–5 (“A method of upgrading software in an engine controller . . . at the engine controller reprogramming apparatus monitoring status information while replacing the one or more blocks of the current software and, if an interruption occurs, using the status information to resume replacing the one or more blocks of the current software.”); *id.* at col. 15 ll. 34–35, 42–43, col. 16 ll. 13–17 (“An apparatus for upgrading software in an engine controller, the apparatus comprising: . . . a processor in communication with the memory and the interface, the processor configured to: . . . monitor status information while replacing the one or more data blocks of the current software and, if an interruption occurs, use the status information to resume replacing the one or more data blocks of the current software.”).

¹¹⁵ *Id.* at col. 2, ll. 61–64.

¹¹⁶ See *id.* at col. 12 ll. 37, 39, 48, 59–62; *id.* at col. 15 ll. 4–5; *id.* at col. 16 ll. 16–17, 7, 13, 16; *id.* at col. 2 ll. 17, 22, 23, 27, 62; *id.* at col. 4 l. 13; *id.* at col. 3 ll. 35, 49; *id.* at col. 6 ll. 31, 35; *id.* at col. 13 ll. 48, 53, 67; *id.* at col. 14 ll. 44, 60–61; *id.* at col. 15 l. 2; *id.* at [57].

¹¹⁷ *Id.* at col. 13 ll. 52–57.

controller.”¹¹⁸ The patent uses different language to describe the two operations: an upgrade involves replacing data blocks, while a restore involves downloading an image. That means that *even if* the function—block by block modification—may be the same, the patent is deliberate and consistent in its use of different words to indicate which operation it is describing. It only uses “resume replacing” with an upgrade operation, and that will be reflected in the definition.

The patent’s intrinsic evidence also illuminates that the method resumes replacing data blocks following an interruption, because that is where the term appears in context: “*if an interruption occurs*, using the status information to resume replacing the one or more data blocks of the current software.”¹¹⁹ Finally, the evidence shows that “resume” means “to continue”: the method provides for “replacing one or more data blocks of the current software with the one or more data blocks of upgraded software” and then, “*if an interruption occurs*, using the status information to resume replacing the one or more data blocks of the current software.”¹²⁰ The invention involves replacing data blocks, and, should an interruption occur, it then continues to replace blocks.

In summary, the intrinsic evidence provides support for part of the definition proposed by Powerteq: “continu[e] the interrupted upgrade operation.” The rest of Powerteq’s proposed construction suffers from the deficiencies discussed below, and therefore the court will not adopt the remainder of its definition.

¹¹⁸ *Id.* at col. 2 ll. 47–49.

¹¹⁹ *Id.* at col. 12 ll. 58–62 (emphasis added); *id.* at col. 15 ll. 3–5 (“A method of upgrading software in an engine controller . . . at the engine controller reprogramming apparatus monitoring status information while replacing the one or more blocks of the current software and, *if an interruption occurs*, using the status information to resume replacing the one or more blocks of the current software.”) (emphasis added); *id.* at col. 15 ll. 34–35, 42–43, col. 16 ll. 13–17 (“An apparatus for upgrading software in an engine controller, the apparatus comprising: . . . a processor in communication with the memory and the interface, the processor configured to: . . . monitor status information while replacing the one or more data blocks of the current software and, *if an interruption occurs*, use the status information to resume replacing the one or more data blocks of the current software.”) (emphasis added).

¹²⁰ *Id.* at col. 12 ll. 37–38, 58–62 (emphasis added).

Powerteq again proposes reading back limitations from the preferred embodiments into the claims. For example, the phrase “the next time the device is used” comes from a preferred embodiment. Its use in Powerteq’s definition is to limit “interrupt” to be a complete or terminal stoppage event, but the court did not construe “interruption” that way for the reasons detailed in the prior section. Next, “from the point of the interruption” is not supported by the preferred embodiments, which provide that a resumption may *either* repeat the operation (restart from the beginning) or continue from the point where it was immediately prior to the interruption.¹²¹ Again, “it is improper to read limitations from a preferred embodiment described in the specification . . . into the claims,”¹²² especially when to do so would exclude one of the embodiments.¹²³

Regarding the last sentence of Powerteq’s proposed construction, Powerteq seeks additional clarity that “resume replacing” means “continuing *the same* operation.” In other words, after an upgrade operation is interrupted, the apparatus will resume an upgrade operation rather than initiate a restore operation. Powerteq points to the preferred embodiment as evidence that an interrupted upgrade operation continues as an upgrade operation.¹²⁴

On the other side, Definitive argues that the claims are intentionally silent on this issue: they “do not say what the data blocks of current software are replaced ***with*** upon resumption.”¹²⁵ At first glance, this appears accurate. All three independent claims state, “to resume replacing the one or more data blocks of the current software.” The claims detail what is replaced (the current

¹²¹ *Id.* at col. 7 ll. 41–51.

¹²² *Epos Techs. Ltd.*, 766 F.3d at 1341 (quoting *Liebel-Flarsheim*, 358 F.3d at 913).

¹²³ *Id.* at 1347 (“[A] claim construction that excludes a preferred embodiment ... is rarely, if ever correct and would require highly persuasive evidentiary support.” (quoting *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1308 (Fed. Cir. 2003)).

¹²⁴ ‘689 Patent col. 7 ll. 33–37 (“If communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the state information to cause *the disrupted operation* to be automatically resumed the next time apparatus 10 is used.”) (emphasis added).

¹²⁵ Pl.’s Mot. for Claim Construction 19–20, ECF No. 118 at 19–20.

software) but not what it is replaced with. And Definitive points out that the preferred embodiments—which detail interrupted upgrade operations being resumed with upgrade operations—use permissive language: “may” and “for example.”¹²⁶

However, as discussed above, “replacing” only appears in conjunction with the upgrade operation and never the restore operation. The patentee was consistent with using “replace” (and “data blocks”) with the upgrade operation and not a restore operation. The intrinsic evidence shows that “replacing the one or more data blocks” is exclusively a component of the upgrade process. So, while the claims do not explicitly detail “what the data blocks of current software are replaced *with* upon resumption,” they implicitly do. The patentee used “replacing” and “data blocks” in this clause, limiting the claim to be for an interrupted upgrade operation that is resumed with an upgrade operation. But because this is clear in the definition without the additional sentence Powerteq proposes, the court will not adopt that part of Powerteq’s proposed construction.

In conclusion, the court will construe “resume replacing” to mean continue the interrupted upgrade operation.

¹²⁶ Pl.’s Opp’n 13–14, ECF No. 142 at 16–17 (“It is true that the two examples of preferred embodiments provided in the patent do not describe resuming an upgrade by restoring.”). The court also observes that one of the preferred embodiments provides for an upgrade operation to begin but to revert to a restore operation should the engine controller memory not be blank when the apparatus checks it before the apparatus begins to write the upgraded, modified image to the engine controller. '689 Patent col. 10 ll. 44–47. The engine controller’s memory not being blank, as the method requires to continue with an upgrade, is not an “interruption.” The error is something foreseen and checked for by the invention, and the invention provides for initiating a process in response to the situation: restoring the current software. Therefore, the fact that an upgrade operation might revert to a restore operation as part of the outlined process does not mean that “resume replacing” after an interruption should include the possibility of an upgrade operation becoming a restore operation after an interruption.

5. “use” / “using the status information to resume”

Term	Definitive’s Construction	Powerteq’s Construction	Patent Reference (col: lines)
use/using the status information to resume (Claims 1, 21, 27)	The status information informs the decision on how to resume	the status information enables the resumption to continue from a state immediately prior to the interruption	2:59-3:2; 7:32-51

Definitive’s proposed construction of “use” / “using the status information to resume” is “[t]he status information informs the decision on how to resume.” Definitive once again argues that no construction is necessary.¹²⁷

Powerteq’s proposed construction states, “the status information enables the resumption to continue from a state immediately prior to the interruption.” It argues that this construction “is consistent with the sole embodiment disclosed in the ‘689 Patent.”¹²⁸ The embodiment states that “[i]f communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the state information to cause the disrupted operation to be automatically resumed the next time apparatus 10 is used.”¹²⁹

Turning to the words of the patent, “use/using the status/state information to resume” appears in independent claims 1, 21, and 27. Claim 1 provides, “wherein replacing the one or more data blocks of current software comprises: . . . monitoring status information and, if an

¹²⁷ Pl.’s Mot. for Claim Construction 20, ECF No. 118 at 20.

¹²⁸ Def.’s Mot. for Claim Construction 23–24, ECF No. 119 at 27–29.

¹²⁹ ‘689 Patent col. 7 ll. 33–37.

interruption occurs, using the status information to resume replacing the one or more data blocks of the current software.”¹³⁰ Claims 21 and 27 provide similarly.¹³¹

The phrase also appears in the “Summary of the Invention,” describing first an upgrade and then a restore operation: “If an interruption occurs, the status information may be used to resume replacing the one or more data blocks of the current software from a state immediately prior to the interruption”¹³² and “[i]f an interruption occurs, the status information may be used to resume restoring the current software from a state immediately prior to the interruption.”¹³³

Finally, it appears in a preferred embodiment: “If communication with engine controller 42 is interrupted while an operation is being performed, then operating software 29 uses the state information to cause the disrupted operation to be automatically resumed the next time apparatus 10 is used.”¹³⁴

This review of the intrinsic evidence indicates that the components of this “term”—“use”/“using the status information to resume”—are defined as construed previously in this decision. Because the court relied on context in order to construe these terms, the terms collectively as they appear in the claim do not—and could not—mean something different than what they already have been construed to mean. The only term of this phrase the court has not previously construed is “use” or “using.” Analyzing the intrinsic evidence for the meaning of

¹³⁰ *Id.* at col. 12 ll. 39–40, 58–62.

¹³¹ *Id.* at col. 15 ll. 3–5 (“A method of upgrading software in an engine controller . . . at the engine controller reprogramming apparatus monitoring status information while replacing the one or more blocks of the current software and, if an interruption occurs, using the status information to resume replacing the one or more blocks of the current software.”); *id.* at col. 15 ll. 34–35, 42–43, col. 16 ll. 13–17 (“An apparatus for upgrading software in an engine controller, the apparatus comprising: . . . a processor in communication with the memory and the interface, the processor configured to: . . . monitor status information while replacing the one or more data blocks of the current software and, if an interruption occurs, use the status information to resume replacing the one or more data blocks of the current software.”).

¹³² *Id.* at col. 2 ll. 59–64.

¹³³ *Id.* at col. 2 l. 64–col. 3 l. 1.

¹³⁴ *Id.* at col. 7 ll. 33–37.

“use” shows that it is synonymous with “employ”: the apparatus *employs* the status information. The intrinsic evidence stops short of providing for a more specific definition. Neither the claims nor the specific embodiments detail or suggest the manner in which the apparatus employs the status information. For this reason, Definitive’s proposed construction is deficient; defining “use” as “informs the decision on how to resume” requires inferences that the patent does not suggest. And the word “inform” injects ambiguity into a term that is not ambiguous. Powerteq’s proposed construction is also insufficient; “enables” is the word Powerteq selected to define “use,” and again, it pours ambiguity into the term. Does the status information *allow* the operation to continue? The patent is silent on the issue. For this reason, the court will construe the term in conformity with the intrinsic evidence, which is to employ.

ORDER

The disputed terms of the patents are interpreted by the court in this Memorandum Decision and Order on Claim Construction.¹³⁵ THEREFORE, IT IS HEREBY ORDERED that:

1. The term “upgrading software in an engine controller” means modifying the engine controller’s version of current software by replacing one or more, but not all, data blocks of the current software to create a modified version of the current software. Current software is the software existing on the engine controller at the time an upgrade operation is initiated.
2. The term “status information / the status information” means data, which may comprise a marker, stored on the apparatus during an upgrade or a restore operation, that are consulted by the apparatus in the event of an interruption.
3. The term “interruption” means a stoppage.

¹³⁵ ECF Nos. 118 and 119 are hereby terminated.

4. The term “resume replacing” means continue the interrupted upgrade operation.
5. The term “use/using” means employ. The rest of the term “use/using the status information to resume” is construed in accordance with parts 2 and 4 of this order.

Signed March 21, 2023.

BY THE COURT



David Barlow

United States District Judge